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2. On *Halichærus grypus* and its Breeding on the Fro Islands off Thronhjems-fjord in Norway. By ROBERT COLLETT, C.M.Z.S.

[Received January 28, 1881.]

In Norway the Grey Seal (*Halichærus grypus*) is found along the entire coast-line as far north as Tromsö. Although it is beyond comparison the most common species of Seal after *Phoca vitulina*, it can hardly be called numerous; but here and there are special places of resort, where they collect together in the autumn for breeding-purposes. In the most northern parts of the country it is doubtless rare, although our knowledge of the Seals of those regions is very limited. It has, however, been observed at Tromsö (69° 30') by Professor Lilljeborg; but no reliable observations have been made as to its existence in Finmark proper.

One of the principal breeding-places of this Seal is the Fro Islands, outside the Thronhjems-fjord, a group of small low-lying islands, stretching about 50 or 60 kilomètres from south to north, at a distance of about 30 or 40 kilomètres from the mainland. Besides eight inhabited islands, the group contains an innumerable



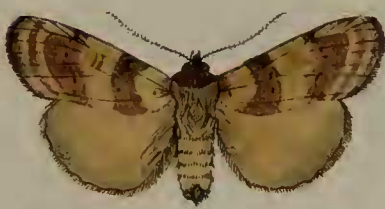
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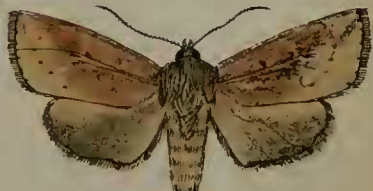
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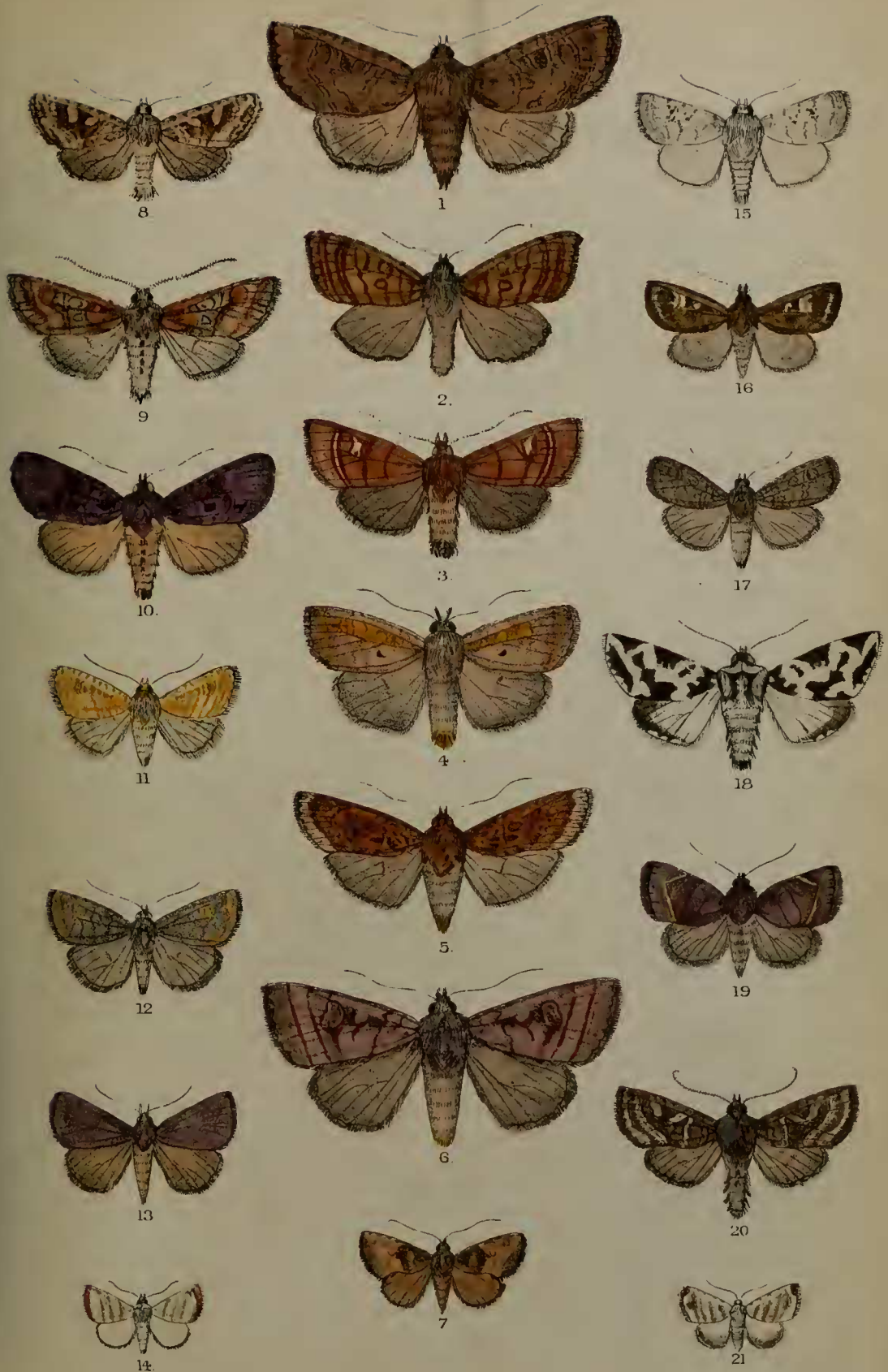


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number of islets, many of which are invisible at high tide and in calm weather; but during stormy weather, and when an onshore wind is blowing, the sea breaks on them with great fury, making this part of the sea one of the most perilous along the coast.

Mr. F. Borthen, the sole proprietor of these islands, has with great readiness on several occasions given me full particulars concerning the stay of the Seals at this group. I have already on one or two occasions made known the more important details of these notes (the last time in 1876¹), without, however, having examined the specimens themselves, on which account I erroneously referred them to *Phoca barbata*, the name under which the specimens from this locality, all of them in their blackish (not grey) dress, have hitherto been exhibited in our Norwegian museums. In December last year, after having examined a specimen that Mr. Borthen had kindly presented to the University's Museum in Christiania, I discovered that the species from the Fro Islands is *Haliçherus grypus*, and not *Phoca barbata*, a mistake which I have the greatest reason to regret². I have carefully gone through the particulars received from Mr. Borthen with that gentleman, both verbally and in writing; and as they are in every respect quite reliable, and on certain points more complete than any we have hitherto been acquainted with regarding any other kind of northern Seal, I give them here, together with observations made in subsequent years.

A. *Breeding-habits.*

The breeding of *H. grypus* takes place on the Fro Islands in the autumn. In the middle of September they begin to assemble rapidly from the south on the most northern of the Fro Islands in order to breed, especially about two miles south of the fishing-station Halton, the most northern point of the group. None appear to come from the north; the coast in this direction being less provided with such sunken rocks and islets as these Seals are in the habit of resorting to. The next breeding-place to the north of the Fro Islands is probably on the outer side of the Vigten Islands, a long and projecting group of islands on the border of Helgeland, about one degree further north.

The number of Seals belonging to the Fro-Islands breeding-district

¹ Lilljeborg, 'Sveriges och Norges Ryggradsdjur.' I. Däggdjuren, p. 701 (Upsala, 1874); Fogh, Lütken, Warming, 'Tidsskrift for populære Fremstillinger af Naturvidenskaben,' 5 R. 3 B. p. 14 (Kjöbenhavn, 1876); Collett, 'Bemærkninger til Norges Pattedyrfauna (Nyt Magazin för Naturvidenskaberne,' 22 B. 1 & 2 H. p. 210, Christiania, 1876).

² In a most exhaustive and excellent work, 'History of North-American Pinnipeds' (Washington, 1880), Dr. Allen has given a monograph of those species of the families Rosmaridæ, Otariidæ, and Phocidæ which belong to the North-American fauna. In this work, in which Dr. Allen with great critical discernment has reviewed what was previously known through the observations of different naturalists, he has with good reason expressed some doubts whether I may not have confused the two above-mentioned species in the remarks which I have made in my papers on the subject.

(in which category must be reckoned all those existing from the Thronhjems-fjord to Christiansund, lat. 64° - 63° N.) scarcely exceeds five or six hundred; and of this number it is probably only the full-grown ones that frequent the islands in the breeding-season. The number of Seals was at one time much greater; but the persecutions they are subject to during the summer in the outlying districts, and especially on the islands along the Romsdal coast, has caused an apparent diminution in the number of the breeders.

The greater part give birth to their young in the last week of September, most usually on the 29th or 30th, or the 1st of October—some a few days earlier and some later, but never after the middle of October.

The Seals probably begin to breed at the age of four years, or at the earliest three years, and give birth to only one young one annually. The young Seal at its birth is covered with a wool-like covering, which falls off after the lapse of a fortnight.

The outermost islets and rocks are chosen for breeding-places, which are mostly rather small, though as a rule large enough not to be washed over by the waves. If the weather be stormy immediately preceding the time of giving birth, the female always chooses one of the larger rocks, and generally places her young one above the highest water-mark, and then takes up her position on the highest part of the rock. If, on the other hand, the weather be unusually fine, she is often tempted to place her young one on such a low-lying rock that, if the weather be stormy whilst it is still in a weak condition, it is often washed away and perishes.

B. *The First Stage of the Young.*

Whilst the navel-string yet remains the pup wears a yellowish-white coat, which, however, loses its colour in the course of the following days, and assumes about the same hue as the skin of the Polar Bear. After the lapse of from seven to ten days dark hairs begin to appear on the tips of the snout and feet; they are first apparent on the great toes of the fore feet. The colour afterwards increases in intensity; and after the lapse of three weeks the young one has entirely lost its woolly hair. The colour of the new dress differs from that of the old Seals; but there is a great variety in its colour among different individuals. Some are light with large dark patches, others are almost wholly dark green, whilst others again are almost black, though the belly is almost always lighter in colour than the back. This variation of colour remains during a great part of the growth; and it is only when they are fully grown that they become more uniform in this respect.

The pups pass the first three weeks of their life on land, until they have shed their woolly coat, often on exactly the same spot where they have been born, and pass their time exclusively in receiving nourishment from the mother and in sleeping. During this period of their lives they are by no means so strictly confined to the dry place of rest as is the case with the Harp Seal, which, so far

as we know, never enters the water voluntarily in its woolly coating ; for, besides always finding a pleasure in wallowing in the small freshwater puddles on the rocks, they are often compelled, "*volentes volentes*," to take to the water at this early stage of their existence. For instance, if a female be often disturbed by man during the days of breeding, the entire family keeps close to the water's edge, and the young ones in the yellowish skins, as well as the old ones, are often to be seen swimming about among the islets ; and if the former have once become accustomed to enter the water at an early age, they do so voluntarily, and are often splashing about in the neighbourhood of their native rocks, especially at high tide, whereas they follow the example of the old ones in remaining on the rocks at low water.

Heavy hailstorms also drive the pups very early to sea ; and they do not like the thin sheets of ice which cover the small water-pools after a frosty night.

The females suckle their pups on land, but do not remain with them long at a time. The suckling probably takes place during the night, as they are often heard to utter cries at that time, which they never do in the water. They are also seen regularly suckling their pups early in the morning. The milk is extremely rich and thick, and is quite white.

As long as the young one retains its woolly coat and is allowed to remain undisturbed on its native island, it receives no other nourishment than the maternal milk. If it happen that bad weather or a heavy sea washes the new-born young one into the water, or if it be separated from the mother by other means, it nearly always dies, as it is unable to procure for itself the means of sustenance at that early period of life ; but when they have attained the age of eight days they are able to stand the change of diet, even though they become extremely thin for a time. As a rule the young one can hardly support itself before the age of three weeks, although it can exist a long time without food, and it rarely dies before all the blubber with which it is coated has disappeared. In this manner young ones have been discovered in deep crevices, from which neither by their own exertions nor with the mother's assistance have they been able to free themselves ; and, to judge from various circumstances, these young ones must have passed about a week and a half without food, although in order to maintain this fast they must have been in good condition beforehand.

When the young ones first come into the world they have very little flesh and hardly any blubber ; but they increase very rapidly (nearly two or three kilogrammes daily), although they receive no other nourishment than the maternal milk. When a young one attains the age of three weeks, or the size at which it becomes the object of chase, it may contain from 20 to 30 kilogrammes of blubber, besides 12 to 18 kilogrammes of meat. Extremely fat specimens have been known to weigh 60 kilogrammes. But this rapid growth ceases as soon as the moulting process is completed, whereupon the parents leave it to support itself.